CAUSES

(Clouds Above the United States and Errors at the Surface)

"A project with an observationally-based focus,
which evaluates the role of clouds, radiation and precipitation processes
in contributing to the surface temperature biases
in the central United States and
which are seen in several weather and climate models."

Cyril Morcrette, Kwinten Van Weverberg, Jon Petch — Met Office, United Kingdom

Hsi-Yen Ma, Stephen Klein, Shaocheng Xie — PCMDI, LLNL, United States

CAUSES website:
http://portal.nersc.gov/project/capt/CAUSES/

GASS GEWEX WCRP Global Atmospheric System Studies | ASR Atmospheric System Research | Met Office | PCMDI | RGCM

Please get in touch if you wish to participate

CAUSES

(Clouds Above the United States and Errors at the Surface)

Break-Out Session: The Hague, July 2014

Sign-in sheet

1) Welcome and Introduction to CAUSES project	(Cyril and/or Hsi-Yen)	(5 minutes)
2) Overview of land-surface analysis at LLNL	(Hsi-Yen)	(20 minutes)
3) Overview of cloud-radiation analysis at Met Office	(Cyril)	(20 minutes)
4) Questions and discussion		(30 minutes)
5) Invitation to participate	(Cyril and/or Hsi-Yen)	(10 minutes)

[Includes: Detailed list of diagnostics to provide in order to take part and contact details if you have any questions.]

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Purpose

A joint GASS-RGCM-ASR model inter-comparison project aiming to determine the role of radiation and precipitation errors in temperature biases in climate models

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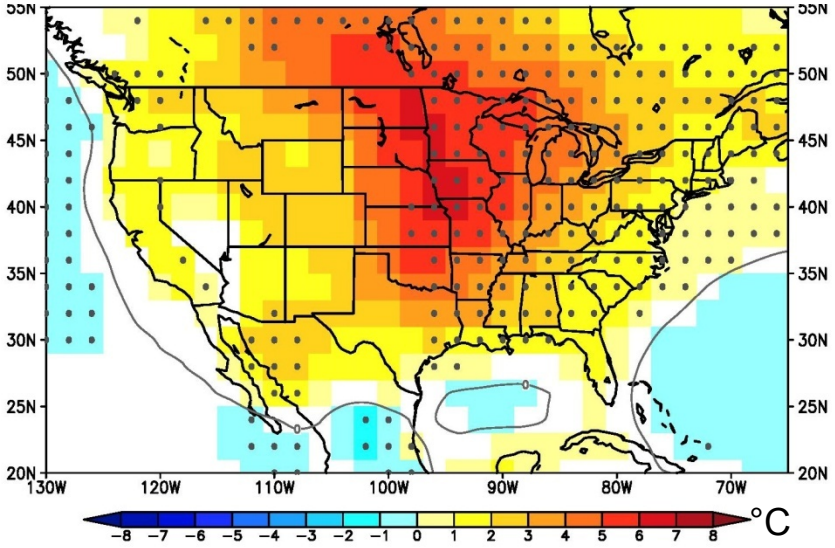
ASR Atmospheric System Research

Summertime 2 meter temperature bias in climate models



Research Foci

1. Radiation errors – particularly due to clouds
Led by Met Office: Cyril Morcrette, Kwinten Van Weverberg and Jon Petch
2. Precipitation and surface energy budget errors
Led by LLNL: Hsi-Yen Ma, Steve Klein, Shaocheng Xie

Methods

Error growth will be diagnosed in hind-cast simulations from a variety of 1-10 km resolution limited area models and 10–100 km resolution global climate models

Region and Period of Analysis

The **investigation will be focussed on the American mid-west and use observations obtained from the SGP site (36.61 N, 97.49 W).**

The period we have chosen is the warm season of 2011 (April 1 to August 31, 2011), which at its start featured a major ARM field campaign: the Midlatitude Continental Convective Cloud Experiment (**MC3E, 22 April to 6 June 2011**).

Simulations:

- Short runs (e.g. 5-days), initialising from analysis at 00Z everyday (covering MC3E)
- Seasonal runs (e.g. 5 month), April 1 to August 31 (longer than MC3E)
- Climate runs (e.g. 20 years).

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What happens next?

The purpose of the CAUSES project is:

- to develop some useful model-evaluation tools
- to evaluate some models and find where they could be improved
- to evaluate new model versions and see if they have improved.

We welcome discussion on how to further develop these evaluation tools.

We invite other modelling centres to submit model output for us to evaluate using the tools we have developed.

We invite participants to look at results from each of the participating models and discuss them.

Invite participation from instrument/retrieval specialists.

Organise CAUSES meeting at a subsequent conference.

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Met Office

Timeline of the project

1: Sep 1, 2014: Finalize experiment design (variable list, hindcast period)

2: May 1, 2015: Submit model experiments

(review the deadline in the ASR spring meeting 2015)

3: Oct 1, 2015: Data processed and analyzed

4: Feb 1, 2016: Complete first draft of the intercomparison papers by Cyril and Hsi-Yen

5: May 1, 2016: Submit manuscripts

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For more information

CAUSES website: http://portal.nersc.gov/project/capt/CAUSES/

Contact us: ma21@llnl.gov or cyril.morcrette@metoffice.gov.uk

RGCM

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